# **BIOTIC COMMUNITIES**

#### Fish Community Data

Since 1940, fish sampling has been conducted throughout the Watershed, by MDC, (Figure BC01; MDC fish database 1998). Eighty-three species of fish have been collected in the Watershed since that time (Table BC01).

The Watershed lies entirely within the Missouri Division of the Ozark Faunal Region (Pflieger 1989a). The majority of the fish species collected in the Watershed are characteristic of this region. Twenty-seven (38.0%) of the eighty-three fish known to occur are typical species found within the region. Wide-spread was the next largest faunal group represented (28.2%) followed in descending order by: prairie faunal group(11.3%), Ozark-prairie faunal group (8.5%), Ozark-lowland faunal group (5.6%), and big river and lowland faunal groups (4.2% each).

Eleven locations were sampled for fish during the 1996-97 seasons by MDC (Figure BC01). A total of 3,742 fish were collected, representing ten families, with fifty-three species and one hybrid (Table BC02). Cyprinids (minnows) were the dominant family in past and recent samples, with 15 species from the 1996-97 samples. Centrarchids (sunfish) followed in 1996-97 with 11 species and one hybrid. One individual redear sunfish was sample during 1996-97 at site 5. This was the first recorded occurrence in the Watershed.

The following comparisons are based upon 1996-97 samples. Bleeding shiners (n=721) were the most numerous species collected followed, in descending order by: Ozark minnow (n=523), brook silverside (n=463), stoneroller species (largescale and central) (n=383), and Missouri saddled darter (n=174). These five species made up 19.3, 14.0, 12.4, 10.2, and 4.7 percent of the total sample, respectively, for a total of 60.6 percent of the fish sampled. The most widespread species was bluntnose minnow, collected at all 11 sites. Blackspotted topminnow and stoneroller species were the second most common fish collected at ten sites, followed by bluegill, longear sunfish, spotted bass, bleeding shiner, mosquitofish, fantail darter, and orangethroat darter, all collected at nine sites. The more common fish species based on ecological affinity were: large fishes - bluegill, spotted bass, longear sunfish, black redhorse, and green sunfish; nektonic fishes - stoneroller species (largescale and central), bleeding shiner, Ozark minnow, brook silverside, blackspotted topminnow, mosquitofish, bluntnose minnow, redfin shiner, and creek chub; and benthic fishes - orangethroat, fantail, and rainbow darters. Species and fish numbers for each sample location are displayed in Table BC02.

The number of species per site ranged from a high of 36 at site #7 to a low of 13 at site #1. Site 7 was located on the mainstem Pomme de Terre River and was the largest location sampled (3rd order, 73.8 ft max. width). Electrofishing was also an added means of capture at this location and was not used at any other sampling locations.

Twenty previously sampled species were missing from recent Watershed samples. Fifteen of these are large species which may have been overlooked as previously mentioned. Chestnut lamprey, mooneye, goldeye, quillback, bigmouth buffalo, silver redhorse, flathead catfish, and rock bass have all been collected at two or less sites throughout the period of collection and most may have a limited distribution

Figure BC01. Missouri Department of Conservation fish sample sites in the Pomme de Terre River watershed.

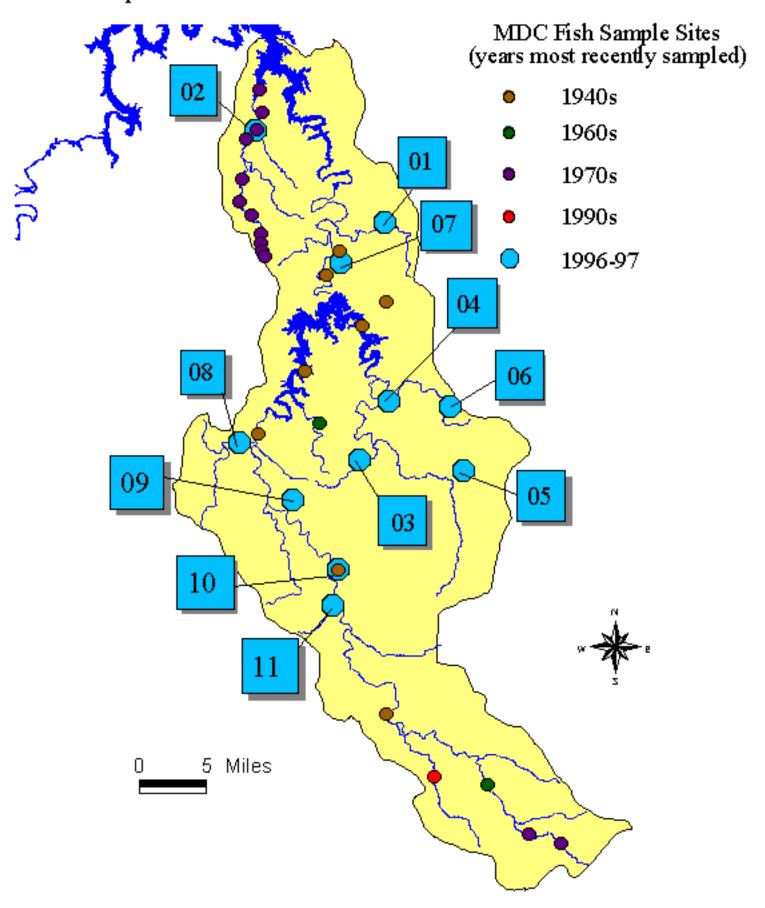


Table BC01. Fish species collected from the Pomme de Terre River watershed by MDC personnel, and their geographic affinities, and trophic guilds (Pflieger 1971; Karr et al. 1986, Robison and Buchanan 1992, Pflieger 1975, Cross and Collins 1995).

Family		Geographic	Trophic
Genus species	Common Name	Affinity <sup>1</sup>	Guild <sup>2</sup>
	LARGE FISHES		
Petromyzontidae (Lampreys)			
Icthyomyzon castaneus	Chestnut lamprey	W	
Hiodontidae (Mooneyes)			
Hiodon tergisus	Mooneye	W	
Hiodon alosoides	Goldeye	В	
Lepisosteidae (Gars)			
Lepisosteus osseus	Longnose gar	$\mathbf{W}$	P
Clupeidae (Herrings)			
Dorosoma cepedianum	Gizzard shad	$\mathbf{W}$	0
Catastomidae (Suckers)			
Carpiodes carpio	River carpsucker	P	
Carpiodes cyprinus	Quillback	P	
Carpiodes velifer	Highfin carpsucker		
Catastomus commersoni	White sucker	О-Р	I
Hypentelium nigricans	Northern hog sucker	O	I
Ictiobus cyprinellus	Bigmouth buffalo	$\mathbf{W}$	
Ictiobus bubalus	Smallmouth buffalo	$\mathbf{W}$	
Moxostoma anisurum	Silver redhorse	O	

Moxostoma carinatum	River redhorse	O	
Moxostoma erythrurum	Golden redhorse	0	I
Moxostoma macrolepidotum	Shorthead redhorse	О-Р	I
Moxostoma duquesnei	Black redhorse	O	Ι
Esocidae (Pikes)			
Esox masquinongy	Muskellunge		
Ictaluridae (Bullhead Catfishes)			
Ameiurus melas	Black bullhead	$\mathbf{W}$	I
Ameiurus natalis	Yellow bullhead	W	Ι
Ictalurus furcatus	Blue catfish		
Ictalurus punctatus	Channel catfish	$\mathbf{W}$	I-P
Pylodictis olivaris	Flathead catfish	$\mathbf{W}$	
Centrarchidae (Sunfishes)			
Ambloplites rupestris	Rock bass	O	
Lepomis macrochirus	Bluegill	$\mathbf{W}$	Ι
Lepomis cyanellus	Green sunfish	$\mathbf{W}$	I-P
Lepomis gulosus	Warmouth	L	I-P
Lepomis humilis	Orangespotted sunfish	P	
Lepomis megalotis	Longear sunfish	O-L	I
Lepomis microlophus	Redear sunfish		
Micropterus dolomieu	<b>Smallmouth bass</b>	O	I-P
Micropterus punctulatus	Spotted bass	O-L	I-P
Centrarchidae (Sunfishes)			

Micropterus salmoides	Largemouth bass	$\mathbf{W}$	I-P
Pomoxis annularis	White crappie	$\mathbf{W}$	I-P
Pomoxis nigromaculatus	Black crappie	$\mathbf{W}$	
<b>Moronidae</b> (Temperate basses)			
Morone chrysops	White Bass	В	
Sciaenidae (Drums)			
Aplodinotus grunniens	Freshwater drum	В	I-P
Cyprinidae (Minnows)			
Cyprinus carpio	Common carp	$\mathbf{W}$	O
Percidae (Perches)			
Stizostedion vitreum	Walleye	$\mathbf{W}$	
	NEKTONIC FISHES		
Cyprinidae (Minnows)			
Campostoma oligolepis	Largescale stoneroller	O	Н
Campostoma anomalum	Central stoneroller	О-Р	Н
Cyprinella lutrensis	Red shiner	P	0
Macrhybopsis storeriana	Silver chub		
Luxilus chrysocepholus	Striped shiner	O	I
Luxilus pilsbryi	<b>Duskystripe shiner</b>		
Luxilus zonatus	Bleeding shiner	0	I
Lythrurus umbratilis	Redfin shiner	W	I
Nocomis biguttatus	Horneyhead chub	0	

Notemigonus crysoleucas	Golden shiner	$\mathbf{W}$	O
Notropis heterolepis	Blacknose shiner	O	I
Notropis nubilus	Ozark minnow	O	O
Notropis atherinoides	Emerald shiner	В	I
Notropis rubellus	Rosyface shiner	O	I
Notropis stramineus	Sand shiner	P	I
Phoxinus erythrogaster	Southern redbelly dace	O	Н
Pimephales promelas	Fathead minnow	P	
Pimephales notatus	Bluntnose minnow	W	O
Cyprinella galactura	Whitetail shiner		
Cyprinella whipplei	Steelcolor shiner		
Semotilus atromaculatus	Creek chub	О-Р	Ι
Fundulidae (Killifishes)			
Fundulus catenatus	Northern studfish	O	I
Fundulus olivaceus	Blackspotted topminnow	O-L	I
Poeciliidae (Livebearers)			
Gambusia affinis	Mosquito fish	L	I
Atherinidae (Silversides)			
Labidesthes sicculus	Brook silverside	O-L	Ι
	BENTHIC FISHES		
Ictaluridae (Bullhead Catfishes)			
Noturus nocturnus	Freckled madtom	L	
Ictaluridae (Bullhead Catfishes)			

Noturus exilis	Slender madtom	O	I
Noturus flavus	Stonecat	P	I
<b>Cottidae (Sculpins)</b>			
Cottus carolinae	Banded sculpin	O	O
Percidae (Perches)			
Etheostoma flabellare	Fantail darter	0	I
Etheostoma tetrazonum	Missouri saddled darter	0	
Etheostoma blennioides	Greenside darter	0	I
Etheostoma caeruleum	Rainbow darter	0	I
Etheostoma spectabile	Orangethroat darter	0	I
Etheostoma zonale	Banded darter	0	I
Etheostoma nianguae	Niangua darter	0	I
Etheostoma nigrum	Johnny darter	O-P	I
Etheostoma punctulatum	Stippled darter	0	I
Percina phoxocephala	Slenderhead darter	O-P	
Percina caprodes	Logperch	0	I
Cyprinidae (Minnows)			
Phenacobius mirabilis	Suckermouth minnow	P	
Erimystax x-punctatus	Gravel chub	0	

<sup>&</sup>lt;sup>1</sup> B=Big River; L=Lowland; O=Ozark; P=Prairie; W=Wide Ranging

<sup>&</sup>lt;sup>2</sup> H=Herbaceous; I=Insectivorous; O=Omnivorous; P=Piscivorous

Table BC02. Fish species collected from the Pomme de Terre River watershed during MDC, 1996-97 fish community sampling, by location.

FAMILY					Site	Numl	<u>ber</u>					
Common Name	01	02	03	04	05	06	07	08	09	10	11	Tot.
			<u>L</u>	ARGE	E FISH	<u>ES</u>						
CLUPEIDAE												
Gizzard shad							1					1
CATASTOMIDAE												
White sucker				1								1
Northern hog sucker							6		1			7
Golden redhorse				12						1		13
Black redhorse	25		1	37		5	4			2	1	75
ICTALURIDAE												
Black bullhead			6									6
Yellow bullhead				4								4
<b>Channel catfish</b>							1					1
CENTRARCHIDAE												
Bluegill	3	7	4	4	<b>78</b>	8	12	3	5			124
Green sunfish	3		2	2	4	12	1		2			26
Warmouth		1					1					2
Orangespotted sunfish					5		1					6
Longear sunfish		3		1	1	5	14	6	20	6	31	<b>87</b>
Redear sunfish					1							1
Hybrid sunfish					1							1
<b>Smallmouth bass</b>							2				3	5
Spotted bass	5		4	1	5	13	6		4	3	1	42

Largemouth bass						1	2	1	2	1		7
White crappie					1							1
Black crappie							3					3
CYPRINIDAE												
Common carp							23					23
SCIANIDAE												
Freshwater drum							2					2
			NE.	KTON	IC FIS	SHES						
CYPRINIDAE												
Largescale stoneroller									3	9	4	16
Central stoneroller									8	3		11
Stone roller species	26	16	11	18	225	9	28		9	3	12	357
Striped shiner		50					2					52
CYPRINIDAE												
Bleeding shiner			7	120	65	117	97	4	42	92	177	721
Redfin shiner		2	28		4	19	8					61
<b>Common Name</b>	01	02	03	04	05	06	07	08	09	10	11	Tot.
CYPRINIDAE												
Golden shiner					3	1						4
Striped shiner										4		4
Ozark minnow		16		30	14	19	8	67			369	523
Emerald shiner							1					1
Rosyface shiner					7				3	4	30	44
Sand shiner		90				22	12				1	125
Southern redbelly dace	1											1
Bluntnose minnow	7	2	16	2	4	48	10	12	1	8	7	117
Creek chub	5	10	3	6	<b>76</b>		9	2				111
												BC-

CYPRINODONTIDAE	1											
Northern studfish	9			1	36		6	1		1		54
Blackspotted topminnow	21	10	4	5	10	17	4		7	3	1	82
POECILIIDAE												
Mosquito fish	6	6	58	2			25	4	3	8	6	118
ATHERINIDAE												
Brook silverside		201	29	3	11	145	13	8	18	11	24	463
			BE	NTHI	C FIS	<u>HES</u>						
<b>CYPRINIDAE</b>												
Gravel chub							2					2
ICTALURIDAE												
Slender madtom		2		1	1			1		1		6
Stonecat							3					3
PERCIDAE												
Fantail darter	1	6	5	4	4	3	10		2	2		37
Missouri saddled darter							6		63	102	3	174
Rainbow darter		2			1	3	2			5	4	17
Orangethroat darter	5	33	19	4	21	20	6	4	2			114
Banded darter				1					31	10	9	51
Johnny darter						1	3					4
Stippled darter				1								1
Logperch				1			10		1		4	16
<b>Greensided Darter</b>									1	11	2	14
TOTAL SPECIES	13	17	15	23	23	19	38	12	22	23	19	54 (sp.)

<sup>\*</sup>Large scale and central stonerollers were combined in samples 1-7.

in the Watershed (Pflieger 1997).

<u>Niangua darter</u> (federally Threatened and state Endangered), <u>blacknose shiner</u> (state Rare), and mooneye (state Rare) were not collected during 1996-97. These species have all experienced declines in the Watershed.

#### Species of Conservation Concern

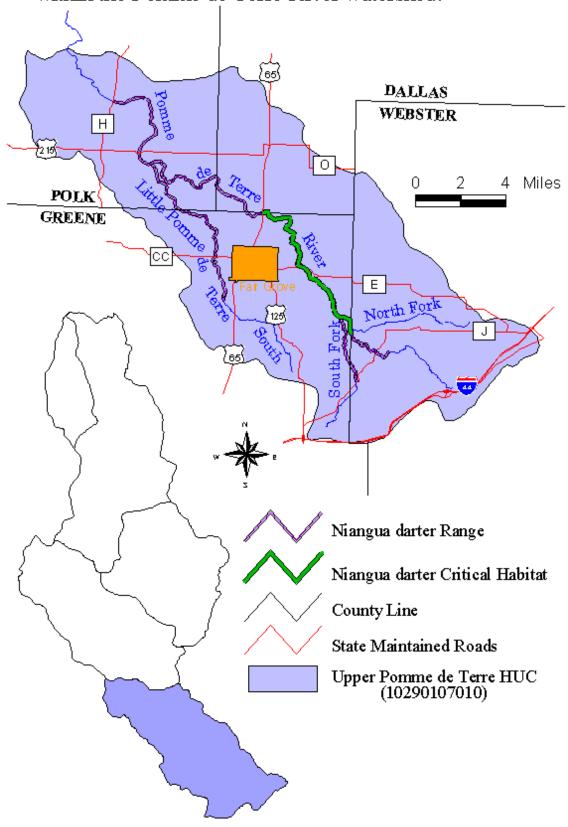
Niangua Darter The Niangua darter, a federally listed Threatened species and state listed Endangered species, was first collected in the headwaters of the Watershed in 1960 (Taber and Wilkinson 1973). Pflieger (1978) conducted a survey to identify the distribution of Niangua darter and identified populations in the Little Pomme de Terre River (north) and the Pomme de Terre River, Greene and Webster counties. Since then, MDC personnel have monitored sites known to support Niangua darter and Hayden Maddingly (doctoral candidate, University of Missouri, Columbia) surveyed Lindley Creek. Niangua darters are presently known to inhabit only the upper segments of Pomme de Terre River drainage (Figure BC02). Recent sampling efforts failed to find Niangua darters in the Little Pomme de Terre River (north), (U.S. Fish and Wildlife Service 1989) or in Lindley Creek (Mattingly and Galat 1995).

Pflieger (1978) suggested that reservoir construction may be the primary threat to Niangua darter survival due to inundation of habitat, increased interspecific competition, predation, and the creation of dispersal barriers. He further speculated that the general deterioration of habitat caused by land use practices may be a contributing factor to the decline of this species throughout its range. Due to the disjunct distribution of this species, dispersal barriers, and general habitat degradation, it is unlikely that natural recolonization will occur in the Little Pomme de Terre River (north). The recovery plan for the Niangua darter (USFWS 1989) recommends the establishment of additional populations through stocking to lessen "the potential for extinction through the incremental extirpation of existing populations." However, no streams in the Watershed were mentioned as potential stocking sites. To date, a thorough survey has not been conducted of streams in the Watershed that may have the potential to support Niangua darters (Figure BC02). The most intensive survey was conducted by Dr. William Pflieger from 1974 through 1977 when five sites were sampled upstream of Pomme de Terre Lake, one site was sampled on Lindley Creek, two sites were sampled on Little Pomme de Terre (N), and one site was sampled on the Pomme de Terre River at a location that would now be inundated by Harry S. Truman Lake. However recent sampling efforts were directed to determine relative abundance of darters only at known locations and protecting these habitats. Future efforts should include the surveys previously mentioned to further validate the extent of Niangua darter distributions and better monitor the status of existing populations.

Federally designated critical habitat for the Niangua darter is restricted to a small section of the Pomme de Terre River in Greene County ranging from the Highway 65 crossing to the Greene County/Webster County Line (Figure BC02; U.S. Fish and Wildlife Service 1989).

Blacknose Shiner. The status of the blacknose shiner, a state listed Rare species (MDC 1998), is not known. However, it appears to be declining and may be well on its way to extirpation from the Pomme de Terre River watershed. Sue Bruenderman (MDC, pers. comm.) speculates that, although a resurvey of historic sites has not been conducted, recent sampling efforts suggest that the blacknose shiner may be absent from the Osage River drainage, including the Watershed. The only known collections of blacknose shiner in the Watershed came from the Little Pomme de Terre River (north) in the 1970s

Figure BC02. Known Niangua darter range and location of Federally designated Niangua darter critical habitat within the Pomme de Terre River watershed.



(MDC fish database). William Pflieger collected blacknose shiners from eight different locations in a period from 1975 though 1979. Extremely low flow conditions (most of the upstream one-half of the stream was completely dry) hindered the 1996 sampling efforts. Only one site (TG96-02; T38N-R23W-02) was sampled in the Little Pomme de Terre River (north) and no blacknose shiners were found.

<u>Mooneye</u>. The status of the mooneye, a state listed Rare species, is unknown at this time. MDC personnel collected mooneye in 1951 and 1940, before construction of Pomme de Terre Lake, at two separate locations on the Pomme de Terre River. None have been reported since and it is assumed they no longer inhabit the Watershed.

#### Fish Stockings

The majority of fish stocked in the Watershed have been stocked by MDC in the two large reservoirs (Table BC03). Currently (1999) muskellunge and walleye are the only fish stocked in Pomme de Terre Lake. The only fish currently being stocked in Truman Lake are paddlefish, hybrid striped bass, and walleye.

Numerous small lakes and ponds throughout the watershed have been stocked with a variety of fish including largemouth bass, bluegill, channel catfish, crappie, redear sunfish and grass carp. Escapement of stocked fish from impoundments undoubtedly occurs, but the extent and the effects of these introductions are undocumented.

#### Sport Fish

<u>Centrarchid species</u> - Spotted bass, largemouth bass, green sunfish, and bluegill sunfish are the predominant centrarchid game fishes present in the Pomme de Terre River. Smallmouth bass are present, but rare. Spotted bass are more abundant than largemouth bass, but both species are sufficiently abundant to provide quality fishing. Black and white crappie are less abundant than other game fishes in the Pomme de Terre River.

Centrarchid populations in the Pomme de Terre River above and below Pomme de Terre Lake are capable of providing good fishing. Anglers can expect to catch spotted bass 8-12 inches long, with a few 15 inches or longer. Largemouth bass 15 inches long are more common than spotted bass, particularly in areas closer to the lake boundaries. Sunfish are probably the most frequently caught centrarchid. Anglers can expect to catch sunfish that are predominantly between four and seven inches. Seven to nine inch crappie are normally the most common sizes available, but larger fish may be more readily caught during April. Peak angling success normally occurs from April-June and September-October.

White Bass - White bass spawn in both the Pomme de Terre River and Lindley Creek. Spawning usually starts around the end of March, with the "peak" usually occurs the last half of April or first week of May. Spawning has typically been observed when water temperatures range between 54 to 64°F, but spawning seems to be more related to a major warming period (i.e. rate of warm up) than water temperature. Spawning primarily occurs at the first three or four major riffles above the lake, with limited white bass spawning observed above these areas. The actual riffles used for spawning depends on the lake level; the higher the lake level, the farther upstream white bass migrate. After spawning, white bass migrate downstream to the lake (Colvin 1998).

A major fish kill of white bass was observed on Pomme de Terre Lake during mid-May 1995. Dead

Table BC03. Species, size, and number of fish stocked into Pomme de Terre and Harry S. Truman lakes.

**COMMON NAME** 

**SPECIES** 

## POMME DE TERRE LAKE (1966-98)

SIZE (inches)

NUMBER

		2 = = (=======)	
Stizostedion vitreum	Walleye	1.0-2.0	44,500
		3.0-4.0	17,698
		4.0-6.0	162
		TOTAL	62,360
Esox masquinongy	Muskellunge	7.0-15.0	2,342
		8.0-12.0	12,588
		10.0-14.0	49,125
		12.0-15.0	10,030
		TOTAL	74,085
	HARRY S. TRUMAN I	LAKE (1981-98)	
SPECIES	COMMON NAME	SIZE (inches)	NUMBER
Morone saxatilis x	Hybrid Striped Bass	1.0-2.0	1,437,872
Morone chrysops		2.1 - 4.0	415,982
		4.1 - 6.0	62,631
		6.1 - 8.0	11,931
		TOTAL	1,929,416
Polyodon spathula	<b>Paddlefish</b>	8.1 - 10.0	1,100
		10.1 - 12.0	517,679
		12.1 - 14.0	127,196
		adults	71
		TOTAL	646,046
Stizostedion vitreum	Walleye	1.0 - 2.0	202,525
		2.1 - 4.0	179,201
		adults	25

		TOTAL	381,751
Ictalurus furcatus	<b>Blue Catfish</b>	5.0	64,905
		10.1 - 12.0	5,120
		TOTAL	70,025
Ictalurus punctatus	<b>Channel Catfish</b>	3.0	36,000
Micropterus salmoides	<b>Largemouth Bass</b>	1.0 - 2.0	342,770
Esox masquinongy x	Tiger Muskie	6.0	6,000
Esox lucius			
Morone saxatilis	<b>Striped Bass</b>	1.0 - 2.0	37,658
		2.1 - 4.0	105,948
		TOTAL	143,606
Dorosoma petensense	Threadfin Shad	3.1 - 5.0	50,000

white bass ranging from approximately 6 inches to greater than 16 inches long were observed with more than 400 counted along the shoreline. This fish kill probably occurred soon after the 1995 spawning run and as many as 95% of the adult white bass died in the lake (Colvin 1998). The cause of this fish kill is unknown.

<u>Walleye</u> - Walleye are present in the PDT River and its tributaries, however, they are of limited abundance (Colvin, M. MDC, pers. comm.). More walleye have been observed in Lindley Creek than have been seen in the PDT River, although sizes seem to be smaller in Lindley Creek than in the PDT River. Walleye spawn just before white bass and in the same general area. Ron Dent, MDC West Central Fisheries Regional Supervisor, has worked on the river for many years and identified six primary walleye spawning riffles between Truman Reservoir and PDT Dam <u>(Figure BC03)</u>.

Muskellunge (muskie) - Muskie were first introduced into PDT Lake in 1966 and have been stocked yearly since. Stocking of fingerlings began in 1967. Mean stocking density of large fingerlings from 1967 through 1975 was 0.05 fish per acre. Stocking density increased to 0.2 fish per acre from 1976 through 1982 and again increased to 0.33 fish per acre from 1983 through 1989 (Neuswanger et al. 1994). Since that time, muskie measuring 10 to 12 inches total length have been stocked at an average rate of 0.5 fish per acre, and it is planned that this rate of stocking will continue into the future (Rich Meade, Fisheries Management Biologist, MDC, pers. comm.). Despite stocking in the lake, relatively few muskie inhabit stream and river sections of the Watershed. In the early 1990's, Meade, who has managed Pomme de Terre Lake since 1986, and Ron Dent (MDC) electrofished most of the river segment from Pomme de Terre Dam to Truman Reservoir and found very few muskie. According to Meade, multiple sampling trips produced, "....less than 12 muskie total." This indicates that muskie emigration from PDT Lake into this section of the PDT River is minimal, mainly because of the spillway drop box design. Meade further stated that based on his experience managing the reservoir, conversations with anglers and angler groups (i.e. Muskies, Inc.), and correspondence with researchers, it is likely that muskie remain primarily in Pomme de Terre Lake with few traveling into tributary streams above the lake.

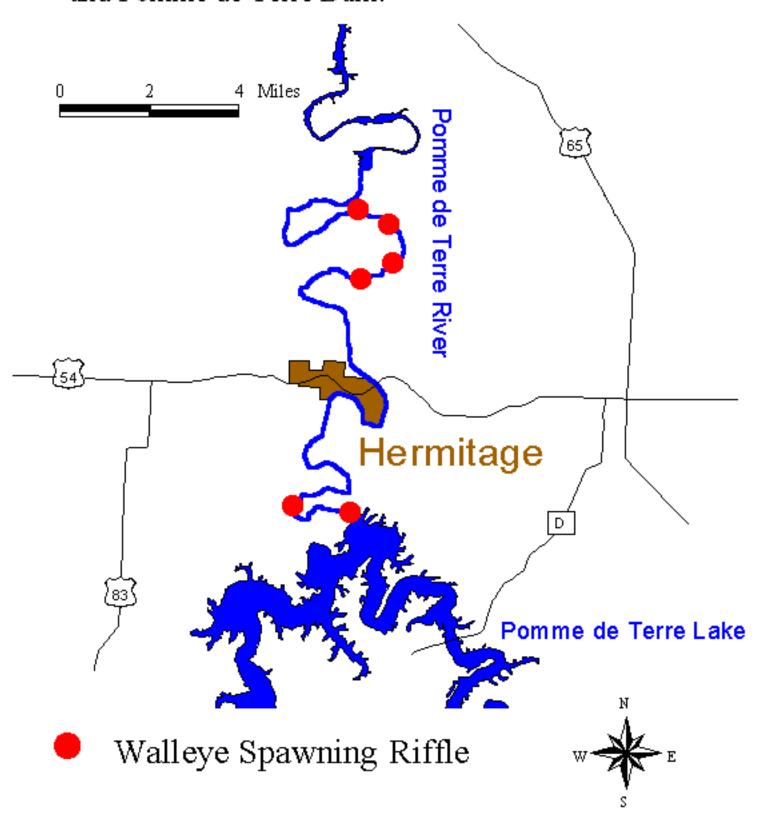
<u>Miscellaneous</u> - Colvin (1998) observed large numbers of carp suckers and buffalo in the streams above Pomme de Terre Lake while sampling for white bass. Dent and Meade observed large numbers of adult redhorse suckers spawning in riffles between Truman Lake and Highway 54. High numbers of gizzard shad were observed in both the lake and streams. Large numbers of gar species have also been observed in the PDT River above the lake.

### Angler Survey Data

Numerous creel surveys have been conducted on Pomme de Terre Lake. Information concerning these surveys can be obtained by contacting MDC's West Central Regional Office in Clinton, MO (660)-885-6981.

Part-time roving creel surveys were conducted on a short stretch of Pomme de Terre River directly below Pomme de Terre Dam, from 1965 to 1974. Annual estimates were made of pole-and-line harvests from March 1 to November 30. Water quality measurements, including: temperature, dissolved oxygen, and conductivity profiles, were also recorded. The study found that no significant relationship between temperature, dissolved oxygen, or conductivity and catch or catch rate existed in the area surveyed. Catch rates were most heavily correlated to discharge rates with higher rates of discharge associated with higher catch rates (Hanson, W.D. 1975).

Figure BC03. Location of walleye spawning riffles on the Pomme de Terre River between Truman Lake and Pomme de Terre Dam.



#### **Aquatic Invertebrates**

*Crayfish* - Two species of crayfish have been collected in the Watershed, northern crayfish (*Oroconectes virilis*) and golden crayfish (*Oroconetes luteus*). Crayfish have been sampled by MDC personnel at fifteen watershed locations since 1979. These occurrences are based on instream sampling only, and samples for burrowing crayfish have not been conducted.

*Mussels* - The most recent mussel collection made in the Watershed was in 1979 on the Pomme de Terre River near the normal pool elevation (706 MSL) of Truman Reservoir. Thirty-four species of mussels are known to occur in the Watershed (<u>Table BC04</u>). The majority of these were sampled prior to the impounding of Truman Reservoir. Surveys need to be conducted to update the status of the Watershed's mussels.

The MDNR has initiated efforts to include biocriteria monitoring, as a method to determine a stream's ability to meet state water quality standards. Two locations were sampled in the Watershed during 1996 (Table BC05). Sampling emphasis has been placed on aquatic insects, specifically those known to be indicators of good or poor water quality. The sites will be sampled in the future and the data will be compared to that of reference Ozark streams, to assess whether or not water quality standards are being met (Sarver, R., MDNR, pers. comm.)

Table BC04. Mussels of the Pomme de Terre River watershed (Oesch 1995, Al Buchanan, MDC, pers. comm., and MDC mussel database).

Scientific Name	Common Name	Period last collected <sup>1</sup>	Location <sup>2</sup>
Genus species			
Pyganodon grandis	Giant floater	D	A,B
Strophitus undulatus	Creeper	D	A,B
Alasmidonta marginata	Elktoe	В	В
Alasmidonta viridis	Slippershell mussel	A	В
Lasmigona c. complanata	White heelsplitter	A	В
Lasmigona costata	Flutedshell	В	<b>A,B</b>
Megalonaias nervosa	Washboard	В	В
Tritogonia verrucosa	Pistolgrip	В	В
Quadrula quadrula	Mapleleaf	В	В
Quadrula p. pustulosa	Pimpleback	C	В
Quadrula metanevra	Monkeyface	В	В
Amblema plicata	Threeridge	D	<b>A,B</b>
Fusconaia flava	Wabash pigtoe	В	В
Fusconaia ozarkensis	Ozark pigtoe	В	$\mathbf{A}$
Cyclonaias tuberculata	Purple wartyback	В	В
Pleurobema sintoxia	Round pigtoe	В	В
Elliptio dilatata	Spike	C	<b>A,B</b>
Obliquaria reflexa	Threehorn wartyback	В	В
Cyprogenia aberti	Western fanshell	В	<b>A,B</b>
Actinonaias ligamentina	Mucket	В	<b>A,B</b>
Venustaconcha ellipsiformis	Ellipse	D	<b>A,B</b>
Ellipsaria lineolata	Butterfly	C	В

Truncilla donaciformis	Fawnsfoot	В	<b>A,B</b>
Truncilla truncata	Deertoe	В	В
Leptodea fragilis	Fragile papershell	D	В
Potamilus alatus	Pink heelsplitter	D	<b>A,B</b>
Potamilus ohioensis	Pink papershell	В	<b>A,B</b>
Ligumia recta	Black sandshell	В	В
Ligumia subrostra	Pondmussel	D	В
Lampsilis teres	Yellow sandshell	В	В
Lampsilis siliquoidea	Fatmucket	D	В
Lampsilis cardium	Pocketbook	D	<b>A</b> , <b>B</b>
Lampsilis reeviana brittsi	Northern brokenray	В	В
Corbicula fluminea	Asian clam	В	<b>A,B</b>

<sup>&</sup>lt;sup>1</sup> A=from archeological location (no recent occurrence), B=collected after 1965, C=collected in 1976, D=collected in 1979.

<sup>&</sup>lt;sup>2</sup> A=above Pomme de Terre Dam, B=below Pomme de Terre Dam.

TableBC05. Summary of April 9, 1996 biocriteria macroinvertebrate sampling conducted in the Pomme de Terre River watershed by MDNR, with emphasis on aquatic insects (MDNR unpublished data).

Macroinvertebrate	Site #1	Site #2	
<b>Community Description</b>			
<b>Number of individuals</b>	1,668	1,356	
Number of Taxa	103	96	
Number of EPT Taxa	28	21	
<b>Number of Chironimid Taxa</b>	27	25	
Percent of Composition:			
Ephemeroptera	7	4	
Plecoptera	3	2	
Trichoptera	1	1	
Diptera	38	36	
Coleoptera	7	3	
Oligochaeta	39	50	

Table BC06. Fishing regulations for Pomme de Terre and Harry S Truman lakes, for permit year 1999.

Pomme de Terre Lake			
Species	Daily Limit	Minimum Length Limit	
Muskellunge	1	36-inches	
Black bass	6	13-inces	
Crappie	15	9-inches	
Channel and blue catfish	10 in the aggregate	none	
Flathead catfish	5	none	
White bass	15	no more than 4>18 inches	
Walleye	4	none	
Harry S Truman Lake			
Species	Daily Limit	Minimum Length Limit	
Black bass	6	15-inches	
Crappie	15	9-inches	
Channel and blue catfish	10 in the aggregate	none	
Flathead catfish	5	none	
White and hybrid striped bass	15	no more than 4>18 inches	
Paddlefish	2 (March 15-April 30)	24-inches from eye to fork of tail	
Walleye	4	none	

Note: These regulations are subject to revision. The *Wildlife Code of Missouri* should be referred to for a complete listing of rules and regulations.